

Test stands to be both newer and better

by Ranney Adams, Propulsion Directorate

EDWARDS AFB, Calif. — Work has started on modernizing one of the nation's largest rocket engine test stands. When it is completed, there may be noisy rumbles across California high desert's Antelope Valley that have not been heard since the Apollo moon mission.

Located at the Air Force Research Laboratory's Edwards Research Site, Test Stand 1-D is part of nearly \$3 billion worth of facilities that have provided the nation with rocket propulsion research, development and test capabilities more than fifty years.

The investment of \$12.6 million for the overall project is very small compared to the estimated \$150–200 million that would be needed to build a new test stand from scratch. The modernization will take approximately 18 months compared with a typical five-year lead-time for a new stand.

Sverdrup Technology is the prime contractor for the modernization. Booz Allen & Hamilton, a management consulting firm specializing in science, engineering, and technical assistance, is providing the management assistance for the engineering, design, and execution of the effort. Currently, there have been more than 350 contract awards involving more than 200 vendors nationwide.

Modifications include upgrading the 60's era test stand to current environmental requirements, and modernization of electrical, plumbing, and instrumentation systems. Because of current day computer systems, the new control room will use much less space, and provide much more information to engineers than was ever possible during moon mission engine testing. Another part of the test stand that will be renovated will be the deluge system that provides a water spray to keep the test stand cool while exposed to high firing temperatures. The water that doesn't turn to steam will be recovered and recycled for use on a future test.

All these efforts will provide a modern state-of-the-art test stand capable of firing a Liquid Oxygen (LOX)-Kerosene fueled rocket engine with 1.5 million pounds of thrust. The 15-story test stand holds the rocket engine for the duration of the firing and measures multiple performance factors.

While the test stand has not been used since the early '70s, it has been preserved by the Antelope Valley's dry desert climate, which prevented rust and corrosion.

Once completed, Test Stand 1-D will add to the Lab's assets of unique facilities that provide the nation with complete research, development, and test capabilities for rocket propulsion technology progress.

Nearly every American rocket propelled satellite, missile, or launch vehicle has been touched by the technology developments or testing conducted at the Edwards Research Site. @